



**City of Burlington Stormwater Management Program  
MS4 Annual Report for Calendar Year 2016**

In accordance with State of Vermont permit 7022-9014 issued to the City of Burlington on October 1, 2013, we are submitting the following annual report documenting stormwater activities completed in calendar year 2016.

**1) Minimum Measure 1- Public Education and Outreach**

- Total Payment made to RSEP: **\$5,500**
- Total Online Media Impressions:
  - Spring: **1,284 clicks**
  - Late Summer: **1,831 clicks**
- # visitors to the Regional Stormwater Education Program (RSEP) website: **6,004**
  - RSEP web address: [www.smartwaterways.org](http://www.smartwaterways.org)
- Maintenance/continued update of municipality's stormwater website
  - <http://www.burlingtonvt.gov/DPW/Stormwater-Management>
- Additional Public Education/Outreach completed in Burlington as part of Integrated Water Quality Planning Efforts. See: <http://bit.ly/1RyvW0I>
- Supplemental information for minimum measure 1 can be found in **Appendix 1-1** (RSEP Annual Review)

**2) Minimum Measure 2 – Public Involvement and Participation**

- Payment made to the Chittenden County Stream Team (CCST): **\$0**
  - CCST website address: <http://www.ccstreamteam.org>
  - Outreach Participation: **415 Burlington residents**
  - Hands On Participation: **28 Burlington residents**
  - Total # of 'likes' on the CCST Facebook Page: **156**
- Green Up Day
  - Amount of Trash collected: **Two 30 cubic yard dumpsters**
  - # of tires collected in Burlington: **75-100**
  - # of cubic yards of scrap metal collected: **0**
  - # of participants: **400**
- Supplemental information for minimum measure 2 can be found in **Appendix 2** (CCST Annual Report)
- Adopt a Drain Program: <http://www.burlingtonvt.gov/DPW/ADOPT-A-DRAIN>
  - Number of new drains adopted: **10**
  - Number of new drain adopters: **5**

### **3) Minimum Measure 3 – Illicit Discharge Detection and Elimination**

- Number of stormwater outfalls inspected: **9**
- Number of stormwater outfalls sampled/tested: **3**
  - Continued e. Coli sampling occurred in the Strathmore neighborhood by both the City and the HOA
- Illicit discharges detected and eliminated: **1**
  - The Stormwater Program had been notified of an illicit discharge (6/10) from a private stormwater outfall (Global Foundries). The outfall is located at the mouth of Englesby Brook, where it meets the shore of Lake Champlain. The private property had been testing their fire suppressant system that day, and unknown amounts of the fire suppressant foam had migrated into their stormwater treatment pond facility. Upon identification of the source, the facility was directed to shut down the pump that discharging to the outfall. The property owner was then instructed by the Assistant Director to pump out any remaining water in the treatment pond and disposed of in a state approved location.
- Stormwater Infrastructure Mapping
  - Mapping updates continue as needed
  - Up to date sewer mapping is available at: <http://www.burlingtonvt.gov/DPW/Mapping-Links>
  - Draft sewershed/watershed mapping is available city wide, see: <http://arcg.is/190ncqo>

### **4) Minimum Measure 4 – Construction Site Runoff Control**

- Number of project local EPSCs reviewed: **49**
- Number of construction site inspections: **10**

### **5) Minimum Measure 5 – Post Construction Runoff Control**

- Number of project stormwater management plans reviewed: **8**
- Number of small stormwater management systems (no State permit) inspected: **0**
- Number of public stormwater management systems inspected/maintained:
  - 11 Infiltration Chamber System
  - 1 swirl separator
  - 8 rain gardens
- City Projects related to Post Construction Runoff Control in MS4
  - Bioretention ‘bump-outs’ and two subsurface chamber systems installed on Grant Street

### **6) Minimum Measure 6 – Pollution Prevention and Good Housekeeping**

- # of catch basins inspected: **661**
- # of catch basins cleaned: **660**
  - Stormwater Vactor was inoperable for portions of the year resulting in a reduced # of catch basins being cleaned
- # of manholes inspected: **550**
  - **550 manholes (mostly sanitary, combined, and some stormwater) were inspected using MACP standards, as part of the departments CWSRF Pipe Assessment and Prioritization project.**

- # of manholes cleaned: **17**
- Linear feet of storm lines cleaned:
  - **2500** linear feet
- # of catch basins repaired: **34**
- # lane miles swept (vacuum assisted): Total: 1,896
- # of dog bags distributed: **~120,000**
- # of tons of material collected by street sweeping:
  - Street sweeping: **2,347,500 lbs.**
- MCAP Audit completed: **No** (last done in 2008, will occur again this permit cycle)
- Trainings attended by City staff:
  - State of VT- Asset Management Workshop Series (SW Tech)
  - PCSWMM Training (SW Tech)
  - IECA Northeast Conference (SW Program Manager)
  - Numerous other webinars and training opportunities
- Municipal Repair/Good Housekeeping Projects:
  - Channel stabilization and drainage improvements made at Little Eagle Bay,
  - Groundwater mitigation conducted at 210 South Union Street to address sidewalk flooding,
  - Drainage improvements completed on Killarney Drive to address flooding issues.

## **7) Other Stormwater Activities and Reporting**

- FY 18 Stormwater Budget Proposed Expenses: **\$1,844,638.00**
- Stormwater fees were increased July 1, 2016
  - Current Stormwater rates per ISU (1000 sq. ft.)
    - \$6.60/month for a Single Family Home;
    - \$6.56/month for a Duplex;
    - \$7.56/month for a Triplex
    - (see: <http://www.burlingtonvt.gov/DPW/Billing>)

## **8) Flow Restoration Plan (FRP) Development Progress (Part IV.C.1.e.1)**

- The City of Burlington submitted their complete Flow Restoration Plans to the State Stormwater Program in October of 2016. We have received comments on those documents, and are currently in the process of addressing those comments.

## **9) Development of “BLUE® BTV” Technical Assistance Program for Landowners (Part IV.C.1.e.4)**

In addition to our own going efforts to promote Low Impact Development through our regulatory review program and through providing technical assistance through our website and directly by our staff, we have secured a \$20,000 grant with the Lake Champlain Basin Program to develop BLUE® BTV. This program is similar to the standard BLUE Program offered by Lake Champlain International, but with the assistance of the Lake Champlain SeaGrant and the grant funding we’ve secured, we will be able to offer homeowners small grants to install practices that have been deemed feasible through their evaluation. We are planning to begin implementation of this program in the early spring of 2017.

#### **10) Flow Monitoring Progress (Part IV.C.1.e.7)**

The City executed the MOU for the joint Flow Monitoring in 2016.

#### **11) Expired Permits Progress (Part IV.C.1.e.3)**

Per the request of the State Stormwater Program staff, we have tentatively decided not to take over any expired permits. However, per our October 1, 2015 interim report to the State, until the State releases the RDA permit and EFA, we do not anticipate making a final decision regarding whether the City will incorporate these permits into the City's MS4 or petition the State to RDA these expired permits.

#### **12) Plans/Projects for Permit Year 2017**

- Ongoing development of Integrated Water Quality Management Plan:  
<http://www.burlingtonvt.gov/DPW/Stormwater/IMSWP>
- Continue development of Formal Asset Management Plan for Stormwater infrastructure
- Repair of Outfall and Channel at Gazo Avenue
- Repair outfall and stabilize bank erosion issues on Route 127
- Address comments on FRP's provided by the Stormwater Program

#### **13) Proposed Changes**

- There are no changes proposed to the SWMP at this time.

#### **Certifications:**

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

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Jenna Calvi  
Stormwater Program Manager

4/13/17

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Date Signed

# MCM #1

## REGIONAL STORMWATER EDUCATION PROGRAM

JANUARY–DECEMBER 2016  
SUMMARY OF ACTIVITIES

PREPARED BY



Since 2003, Chittenden County's twelve MS-4s have worked to pool resources to professionally engage the public in a one message, one outreach effort known as the Regional Stormwater Education Program. Through regular Spring and Summer advertisements to drive people to the program's website, [www.smartwaterways.org](http://www.smartwaterways.org), this cooperative approach to fulfilling their NPDES Permit Minimum Measure #1 requirements has built a regional awareness among the public of the need for individual action to assist in fighting stormwater problems.

Beginning in the summer of 2016, the MS4s through its Lead Agency, the Chittenden County Regional Planning Commission contracting with Tally Ho of Burlington, Vermont, has begun the process to rebrand the Smart Waterways campaign into a combined effort with the MS4's Minimum Measure #2 regional effort known as the Chittenden County Stream Team to create one cohesive organization and outreach effort to both educate the public about stormwater and boost public participation in implementation of projects to combat the negative impacts of stormwater.

This 2016 Calendar Year report recaps the performance of the Regional Stormwater Education Program and describes some of the work done to effect the transition to the new combined Minimum Measures #1 and #2 effort to be known via the brand of "Rethink Runoff."

### SPRING AND LATE SUMMER CAMPAIGNS

Spring and fall campaigns were run by J.Andrews Marketing, using the existing branding, creative, and website.

#### SPRING 2016

Below is a cost breakdown of media buys, compared with Spring 2015. In addition to television, radio, and online media buy, a small print buy was added.

SPRING 2015		
SOURCE	COST	PERCENTAGE
RADIO	\$2,500	25%
ONLINE	\$4,000	40%
TV	\$3,500	35%
TOTAL	\$10,000	100%

SPRING 2016		
SOURCE	COST	PERCENTAGE
PRINT	\$2,500	12.5%
RADIO	\$4,500	22.5%
ONLINE	\$7,500	37.5%
TV	\$5,500	27.5%
TOTAL	\$20,000	100.0%



Below are the results from the online component. Print and radio click-throughs were not tracked.

#### SPRING 2016 ADVERTISING METRICS (SMART WATERWAYS, SLOW THE FLOW)

SOURCE	IMPRESSIONS	CLICKS	COST	COST PER CLICK
WCAX	120,000 impressions	194	\$1,000	\$5.15
XFINITY	video pre-roll, 28,000 impressions	n/a	\$1,965	n/a
	Comcast Video Plus, 28,000 impressions	n/a		
VPR	10,000 impressions	n/a	\$150	n/a
FRONT PORCH FORUM	120,000 impressions	420	\$1,560	\$3.71
GOOGLE AD NETWORK	pay-per-click	623	\$938	\$1.51
SEVEN DAYS	100,000 impressions	47	\$1,093	\$23.26
TOTAL		1284	\$6,706	\$5.22

#### SPRING CREATIVE



#### RADIO SCRIPT

*Did you ever stop and think about the fact that stormwater flows right over your property? That same stormwater can cause problems in our streams and the Lake. You can help to keep it clean and slow its flow with some simple home and yard projects.*

*Stormwater is not treated before it reaches local streams and rivers, so it's important that we all do our part. Simple changes to your yard can prevent erosion, algae blooms, and other environmental issues that affect our waterways.*

*Now that you know how you can protect our waterways, what project will you take on first to help keep stormwater runoff clean? Go to [smartwaterways.org](http://smartwaterways.org) to learn more.*



## LATE SUMMER 2016

Advertising continued the existing creative, including the general smart waterways ads, the Slow the Flow series, and the Fertilizer (In the fall or not at all) series.

SOURCE	IMPRESSIONS	CLICKS	COST	COST PER CLICK
<b>WCAX</b>	80,000 impressions RSS feed 250,000 PC impressions	796	\$800.00	\$1.01
<b>XFINITY</b>	50,000	256	\$1,985.00	\$7.75
<b>VPR</b>	20,000	26	\$300.00	\$11.54
<b>FRONT PORCH FORUM</b>	140,000	377	\$1,050.00	\$2.79
<b>GOOGLE AD NETWORK</b>	pay-per-click	376	\$699.60	\$1.86
<b>TOTAL</b>		1831	\$4,834.60	\$2.64

## LATE SUMMER CREATIVE



## ANALYTICS FOR FY2016

### TOTAL VISITS

TOTAL	TIME PERIOD
6,004	2016
4,659	2015
7,728	2014
3,541	2013
2,787	2012

### TOP 10 VERMONT LOCATIONS

TOWN	VISITS/PERCENTAGE
Burlington	529 (21.74%)
South Burlington	301 (12.37%)
Essex	240 (9.86%)
Colchester	228 (9.37%)
Williston	152 (6.25%)
Montpelier	114 (4.69%)
Shelburne	107 (4.40%)
(not set)	84 (3.45%)
Richmond	74 (3.04%)
Stowe	49 (2.01%)

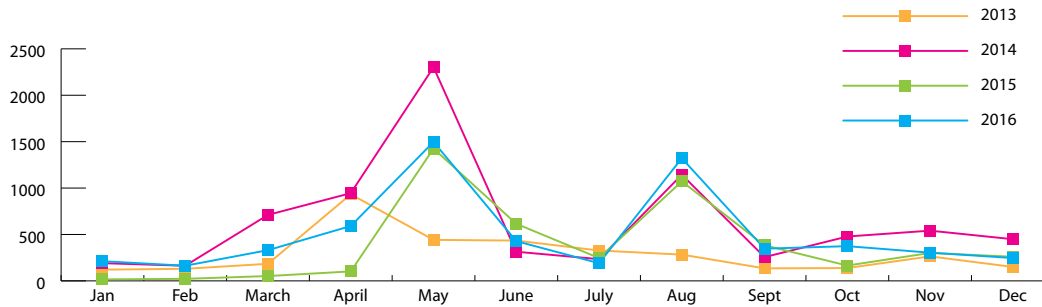
40.52% of total visitors were from Vermont.

### DEVICE

TYPE	VISITS/PERCENTAGE
desktop	3,886 (64.72%)
mobile	1,513 (25.20%)
tablet	605 (10.08%)



## YEAR BY YEAR COMPARISONS



## REBRANDING

Rebranding and launching in the spring of 2017. Smart Waterways will transition to Rethink Runoff, with the Chittenden County Stream Team as a sub-brand

In addition, we've created a character, Ms. Drop, to provide monthly tips and guidance throughout the year. The new brand, and website is scheduled to launch early April. Existing creative will be repurposed with the new look, while retaining existing messaging.

## REVISED NAMING AND BRANDING



### RETHINK RUNOFF

- overall brand
- infographic-style



### THE STREAM TEAM

- "boots on the ground"
- outreach
- hand-drawn aesthetic



### MS. DROP

- runoff tips and techniques





## MCM #2

### Chittenden County Stream Team

### January - December 2016 Summary of Activities

This report summarizes Chittenden County Stream Team (CCST) activities in the 2016 calendar year:

#### Social Media

##### Facebook

- 156 total “likes”-- a 22% increase in likes from the 2015 annual report numbers (120 total likes)  
*Facebook ‘likes’ can’t be isolated by year; only total numbers over time can be counted.*

##### CCST Website

- 1,281 website visits, spending an average of 1 minute and 22 seconds on the website per visit. The number of visits is down 28% from 2015 (1,773 visits).
- 2,481 page views; 32% down from 2015 (3,603).
- 76% of visitors were new to the site.
- The highest spikes in page views occurred on June 15<sup>th</sup> and August 1<sup>st</sup>, which both had 36 visits. The June 16<sup>th</sup> spike is likely due to a combination of the Milton Reporter newspaper ad for CtD 4.0 (6/2) and the spring newsletter (6/2). The August 1<sup>st</sup> spike was likely due to the newsletter (7/28) and outreach for the Water Works Fair event that occurred before and after the event on July 31<sup>st</sup>.

#### Newsletter and e-correspondence

- As of 12/23/16, there were 426 subscribers to the CCST newsletter; down 7% from 459 in 2015.
- A spring newsletter was sent out in early June with a 35.1% open rate. A winter newsletter was sent out in January with a 35.3% open rate. CCST E-News open rate is high; the typical open rate for similar industries is between 20-25% according to research completed by Mail Chimp.
- The Mail Chimp email list was used additional times throughout the year to announce the rain barrel workshops and to request artists/volunteers for the Burlington Storm Drain Mural project.

#### Organizational Partnerships

The Chittenden County Stream Team partnered with 14 different organizations in 2016 which was an increase from 2015 (9 organizations in 2015).

- Milton, Parks and Recreation Department assisted CCST with coordinating the Connecting the Drops 4.0 display and rain barrel workshop at Milton’s Freedom Fest. The Milton Conservation Commission also helped do outreach for this event, and a high school student from Milton posted flyers for the rain barrel workshop around town. Lake Champlain Sea Grant (LCSG) staff helped install the CTD 4.0 display, and members of the Milton Boys Scouts group assisted with take-down.
- CCST partnered with Lewis Creek Association, LCSG, and staff from Social-Ecological Gaming and Stimulation Lab (Ahead of the Storm project) to teach a stormwater and Green Stormwater Infrastructure (GSI) lesson to middle school students at Shelburne Community School.
- CCST worked with multiple schools and school groups this year including Shelburne Community School (see description above), Milton Summer Camp to teach a stormwater/GSI lesson, Winooski Valley Parks District to teach a stormwater/GSI lesson at 6<sup>th</sup> Grade Conservation Day, Summit Street School to lead a stream clean-up on Sunderland Brook, Essex Tech to lead a stream clean-up on Indian Brook. Finally, a South Burlington boy’s scout group partnered with CCST to take over maintenance of South Burlington Library rain garden.
- CCST partnered with Burlington Department of Public Works (DPW) to coordinate a “Host a



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Storm Drain” mural project in Burlington in 2016. Additional support was provided by Burlington City Arts, who helped get the word out about the event and choose the final mural artists.

#### Media

The Chittenden County Stream Team had 9 media appearances in 2016; an increase from 6 in 2015.

- The Other Paper, 8/18/16, “Scouts Adopt S. Burlington Library Rain Garden”:  
<http://edition.pagesuite-professional.co.uk//launch.aspx?eid=be10fe0c-f65c-47a1-b791-7bbe00670393>
- Burlington Free Press, 6/10/16, “Water monitors needed in Chittenden County”:  
<http://www.burlingtonfreepress.com/story/life/2016/06/10/water-monitors-needed-chittenden-county/85705174/>
- Burlington Free Press, 08/31/16, “BTV storm drain mural project coming”:  
<http://www.burlingtonfreepress.com/story/news/local/2016/08/24/btv-storm-drain-mural-project-coming/89276148/>
- The Essex Reporter, 09/14/16, “Volunteers needed for stream cleanup”:  
<http://www.essexreporter.com/volunteers-needed-stream-cleanup/>
- Seven Days, 10/11/16, “Stream Team Decorates Burlington Storm Drains”:  
<http://www.sevendaysvt.com/LiveCulture/archives/2016/10/11/stream-team-decorates-burlington-storm-drains>
- Burlington Free Press, 10/7/16, “Murals with a message at storm drains”:  
<http://www.burlingtonfreepress.com/story/news/2016/10/07/murals-message-storm-drains/91739322/>

Seven Days does not archive event postings; therefore, the rain barrel workshop and storm drain mural postings are no longer available. ABC 22 news aired a segment on Burlington storm drain project, but that video was not made available to CCST, although it was requested.

#### Outreach

Outreach includes any educational opportunities or tabling events where resources or information are provided to the community about the CCST program. There were **10** outreach events in 2016, reaching 349 people.

- Ahead of the Storm education at Shelburne Community School (4/5/16, 49 people reached)
- 6<sup>th</sup> Grade Conservation Day (stormwater and GSI lesson) (5/18/16, 75 people reached)
- Sunderland Brook cleanup (5/20/16, 16 people reached)
- Milton CtD 4.0 tabling (6/4 and 6/14/16, 18 people reached)
- Milton Summer Camp (stormwater and GSI lesson) (06/20/16, 20 people reached)
- Water Works Fair tabling (7/31/16, 15 people reached)
- Shelburne Harvest Festival (9/17/16, 96 people reached)
- Burlington Storm Drain Mural project (9/24/16, 100 people reached)
- Colchester Pink Out the Park tabling (10/1/16, 25 people reached)
- Essex Jct. Farmers Market tabling (9/23/16, 20 people reached)

Outreach events in 2016 targeted the Village of Essex Junction, Town of Essex, and Town of Colchester.



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## **MCM #2**

### **Chittenden County Stream Team**

### **January - December 2016 Summary of Activities**

CCST tabled at the Essex Junction Farmers Market on 9/23 and the Colchester Pink Out the Park 5K on 10/1. A place was reserved at the December Crafts Show in Essex, but CCST was removed from this event last minute. CCST will make up for this lost outreach opportunity by attending an outreach event in the Town of Essex in 2017.

The work plan goal for outreach participation was 300 people, which was surpassed by 49 people for a total of 349 total participants in outreach and educational opportunities in 2016. No specific goals were set for numbers of outreach participants from particular towns, so this information was not recorded. In the future, the CCST coordinator will make an effort to document what town those interacted with live in, to gain a better understanding of our reach to each MS4 town.

### **Event-Driven Tasks**

There were 11 hands-on events held and the continuation of ongoing tasks which included rain garden adoption and maintenance and water quality monitoring in 2016. Education events are also included as they involved hands-on stormwater lessons (see Shelburne project description for more detail).

- Sunderland Brook cleanup (5/20/16)
  - Partnered with teachers from Summit Street School in Essex to coordinate a cleanup on a portion of Sunderland Brook flowing through Pearl Street Park
  - 10 minute lesson on watersheds and stormwater was given to 14 elementary school students and 2 teachers prior to the cleanup
- Shelburne Ahead of the Storm (AOTS) education (4/5/16)
  - A lesson on stormwater and GSI was prepared and taught to two, middle school classes (total of 49 participants) at Shelburne Community School
  - Partnered with Lewis Creek Association, Lake Champlain Sea Grant and SEGS Lab to coordinate and carry out this effort
- 6<sup>th</sup> Grade Conservation Day (5/20/16)
  - A lesson on stormwater and GSI was given to 75 students from all over Chittenden County
- Connecting the Drops 4.0 (6/4 and 6/14/16)
  - Partnered with the Lake Champlain Sea Grant to prepare and advertise for this event
  - Hired 5 artists to paint 5 rain barrels for display at Milton Farmers Market
  - 113 people signed up to win one of the 4 rain barrels
  - 10 volunteers helped set up (6) and take down (4, Milton Boys Scouts) the rain barrel display
- Milton Rain Barrel Workshop (6/25/16)
  - Partnered with Milton Parks and Recreation Department, Milton Conservation Commission, and Milton Boy Scouts group to carry out this event at the Milton Freedom Festival
  - 12 participants built 14 barrels. All participants received outreach materials about rain barrels and stormwater
- Milton Summer Camp lesson (6/20/16)
  - Taught a lesson on stormwater and GSI to 20 students of the Milton Summer Camp
- Adopt A Rain Garden
  - 5 of the 11 CCST-managed rain gardens were adopted in 2016



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**MCM #2**  
**Chittenden County Stream Team**  
**January - December 2016 Summary of Activities**

- A total of 14 individuals volunteered their time to maintain the gardens
- Volunteer Water Quality Monitoring Training/Sampling
  - 22 people contacted CCST to find out more information about volunteering. Of those, 16 volunteers took part in the sampling in 2016. All were trained at the 6/28 training session or subsequent trainings in the field
  - Sampling occurred on five scheduled dates: 7/5, 7/19, 8/2, 8/16, 8/30; and two rain events: 8/1 and 10/13
  - Volunteers were recognized for their dedication and work with pizza on 10/2
  - 2016 Sampling report will be presented at each MS4 Town Meeting Day
- South Burlington Library rain garden cleanup (8/6/16)
  - Amy Niggel and her Cub Scout Pack 678 agreed to adopt this rain garden, and they met on 8/6 to spread mulch, weed, and replant bare sections in the rain garden on 8/6
  - Event was featured on the 8/18 edition of the Other Paper
  - South Burlington High School donated +\$100 in wood mulch for the garden
- Burlington Storm Drain Mural Project (9/24/16)
  - Four artists were contracted to paint storm drain murals at Main and South Union St., 1 Main St., on Saint Paul St. next to City Hall Park, and at the entrance to Lyman C Hunt Middle School in Burlington
  - Over 100 people approached the artists to ask about the project. A handout about the project and the importance of addressing stormwater concerns was made for the artists to hand out to people passing by during the event.
  - Burlington Free Press, Seven Days, and ABC 22 news all covered this event
- Indian Brook Stream Clean-Up (9/28/16)
  - Partnered with class from Essex Tech to do a stream cleanup along Indian Brook as it flows past Essex High School
  - This event was featured in the Essex Reporter, and two additional community members came to the event to assist with the cleanup - a total of 18 participants
  - Essex Department of Public Works picked up and disposed of the waste

Hands-on participation events in 2016 targeted the towns of Burlington, Shelburne, and Milton. For the Shelburne project, CCST partnered with Lewis Creek Association and other groups to develop and carry out a lesson about stormwater and green stormwater infrastructure for middle school students at Shelburne Community School. A Connecting the Drops rain barrel display and rain barrel workshop was conducted for Milton with assistance from Milton Parks and Recreation Department. Finally, a storm drain mural project was coordinated for Burlington with help from Burlington Department of Public Works.

The work plan goals for participation were met and exceeded in all three towns. A total of 233 people participated in hands-on CCST events in 2016, 86 of which volunteered their time in some CCST activity. The 2016 included a work plan goal of 150 people volunteering in 2016, but this is believed to be a mistake and the goal was meant for participants in events. CCST coordinator suggests making a 2017 goal of 250 participants in hands-on events, and a goal of 80 volunteers.



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**January - December 2016 Summary of Activities**

Outreach towns for the following year are selected from end-of-year event participation numbers and frequency of targeting a town. Chosen outreach towns for 2017 are Williston, South Burlington and Winooski.

### **CCST Outreach Demographic Impacts**

The table below displays the interaction from each of the 9 MS4 communities on CCST's website, Facebook page, and newsletter. It is important to note that this data does not provide the total number of people using/viewing these platforms from each town, as it can only generate this information from internet users who share their location. However, it does provide a picture of where our outreach has been strongest (e.g. Burlington, South Burlington, and Williston), and where we can target more outreach efforts (e.g. Shelburne, Winooski, and Milton).

	Website Visits	Facebook Likes	Mailchimp Newsletter "Opens"
Burlington	137	30	72
Colchester	31	7	13
Essex Town	29	0	16
Village of Essex	--*	3	37
Milton	0	2	36
Shelburne	0	3	14
Williston	19	7	75
South Burlington	58	14	45
Winooski	0	8	29

**Table 1: Interaction with Facebook, website, and newsletter by CCST Member Town**

\*Google Analytics groups Essex Town and Essex Junction together

### **Milton Project: Connecting the Drops 4.0**

In 2013, the Winooski Natural Resources Conservation District received a grant from VT DEC's Ecosystem Restoration Program for the "Let it Rain" program, a technical and financial assistance program aimed at supporting landowners in the installation of low impact development practices. A subsequent grant was awarded by the Lake Champlain Basin Program to support this initiative with funding for outreach and education to landowners about stormwater. Connecting the Drops emerged from Let it Rain as an art and education installation about stormwater. This display featured rain barrels in downtown Burlington in the summer of 2013. RSEP provided an additional \$12,500 to leverage the exhibit's exposure for logo placement



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## MCM #2

### Chittenden County Stream Team

### January - December 2016 Summary of Activities

on print and web ads, signage, website, fliers, and verbal recognition at public events associated with the exhibit.

Based on the successful outcomes of the 2013 campaign, MS4 subcommittee requested a proposal for subsequent Connecting the Drops projects. With a significantly smaller scope, Lake Champlain Sea Grant (LCSG) worked with The Chittenden County Stream Team (CCST) to develop a “traveling” version of the Connecting the Drops exhibit, which was featured in Essex Junction in 2014 and in Williston in 2015. The relatively small budgets of these projects had a large impact on overall community participation numbers, and another event was planned in 2016 for the target town of Milton.

A total of five rain barrels were displayed at Milton Farmers Market location adjacent to Hannafords from June 9th - July 21st, 2016. The barrels were decorated by local artists (Seb Sweatman, Jackie Bishop, Harrison Holmes, and Brian Clark) who were paid a \$200 stipend to carry out the work. In addition to the display, a build-your-own rain barrel workshop was held during the Milton Freedom Festival on June 25th. Throughout the six weeks the rain barrels were on display in Milton before the give-away, 113 people applied through the Let it Rain website/QR code display signage to win a rain barrel (Table 2); an additional 5 people signed up during the Milton Farmers Market.

The total cost to plan, manage and implement CtD 4.0 and the rain barrel workshop was approximately \$4,500. In addition to personnel hours for project management and travel funds, the primary costs were compensation for the five professional artists (\$1,000) and paid advertising in the Milton Reporter (\$340). Winooski NRC had to transition staff members in the middle of the project, adding a little more to the staff time needed to plan this project. The approximate amount of personnel time used to plan and execute this project was 80 hours.

Connecting the Drops 3.0 had a significant impact on CCST’s successful year in 2016. The amount spent on this project was approximately 19 % of CCST’s total FY16 budget. All work plan targets for outreach and event participation in Milton were exceeded through the CtD 4.0 events.

Town   <input type="text"/>	# of people
Milton	40
South Burlington	33
Essex Junction	30
Burlington	7
Colchester	3
Shelburne	3
Williston	2
Other	2

**Table 2: CtD 4.0 sign-ups**

Rain Barrel Winners	Town
Donna McGuire	Milton
Sue Montero	Milton
Marie Agan	Milton
Gary Tilden	South Burlington
Stephanie Giles	South Burlington

**Table 3: CtD 4.0 rain barrel winners**



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*CtD 4.0 winner and display at Milton Farmers Market*

### **Shelburne Project: “Ahead of the Storm” Education**

In April 2016, CCST teamed up with the Lewis Creek Association (LCA) to execute an "Ahead of the Storm" (AOTS) project at Shelburne Community School. AOTS is a program designed by LCA to assist landowners with identifying "Optimal Conservation Practices" that would strengthen their flood resiliency and reduce their stormwater footprint in the LaPlatte Watershed. Shelburne Community School signed on to work with LCA, and an environmental engineer visited the school to assess and make recommendations for stormwater retrofit improvements to reduce the impact of the campus on nearby McCabe Brook.

CCST's role in this project was to provide an in-depth lesson on stormwater and green stormwater infrastructure to two classes of middle school students (47 students). To accomplish this, CCST's coordinator and partner groups created an interactive GSI kit so the students could visualize the impact rain gardens, green roofs, and rain barrels have to sink, spread, and store stormwater (see pictures below). The feedback from this lesson was tremendous. The majority of students said the lesson was both meaningful and fun. After this lesson was given, the students walked the campus with the engineer to share their ideas for stormwater improvements that could be made at their school, cementing the concepts of this lesson.

The total cost to plan, manage and implement the AOTS project was approximately \$900. This entire expense went to personnel time to meet with partners, coordinate with teachers, prepare the lesson, and teach.



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*Shelburne Community School students learning about stormwater and green stormwater infrastructure*

### **Burlington Project: Storm Drain Mural Campaign**

CCST teamed up with the Burlington Department of Public Works (BDPW) in September 2016 and contracted four Vermont artists to paint murals around predetermined catch basins in Burlington. The intention of CCST's newest art campaign was to raise awareness of the connectivity of storm drains to the lake by creating an eye-catching image that each passerby is compelled to notice. Each mural contains an inspiring and catchy phrase to remind people that these drains convey untreated stormwater *directly* to local streams and ultimately Lake Champlain.

While painting their murals on September 24th, the artists were approached by well over 100 people with questions about the campaign and appreciation for raising awareness about this important topic. CCST's coordinator prepared an informational flyer about the event, the importance of reducing stormwater, and ways to lessen its impact (e.g. rain barrels, mowing high, smart watering, picking up dog poop, etc.). These flyers were handed out to passing people.

The approximate cost to plan, manage and implement the storm drain mural project \$3,200. The majority of this expense went to paying the artists (\$1000 - BDPW covered \$1000). Each artists was paid a \$500 stipend. The remaining amount went to personnel time to plan, coordinate with partners and artists, scout suitable storm drain sites, and do outreach for the event.

As this was the first storm drain mural project for CCST, a list of "lessons learned" has been provided below to ensure the success of future mural projects:



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- The best storm drain mural locations are those that are high pedestrian traffic, low vehicular traffic, and are surrounded by asphalt/cement that is flat, not eroding, and free of dirt/grass. It proved to be quite challenging to find suitable storm drain locations for this project. If possible, coordinators of future mural projects should work with the local Public Works staff to pick suitable mural sites. Some departments have mapped their catch basins, and might be able to narrow down choices to make scouting for sites less time consuming.
- Storm drain sites will ideally be picked before doing a “call for artists” to submit concepts. That way the artist can be informed whether this site is abutted by a sidewalk and this can be planned in their design.
- The “call for artists” should include a line that artists must anticipate help from volunteers. Engaging the general public in this work going forward will make for an even more successful event. If possible, a storm drain stenciling event should take place on the day of mural painting to involve more community members.
- The document to contract artists to do this work should include a release that the art can be touched up by volunteers in future years, to prolong the life of the murals.
- BDPW paid staff from the city’s Transportation Department to help set up traffic safety and to remove the catch basin grates so protective plastic could be laid down. Similar coordination with transportation staff for future programs will need to take place as early as possible.

Overall, the Burlington storm drain mural campaign was a tremendous success in terms of outreach to the Burlington community and beyond. Over 100 people stopped to speak with the artists while they were painting. Burlington Free Press and Seven Days featured two articles on this project. ABC 22 news interviewed CCST’s coordinator on the day of the event, and this story was aired on the “Community Matters” program. The amount spent on this project was approximately 12% of CCST’s total FY16 budget.



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*Burlington's 2016 storm drain murals*

2016 Storm Drain Artists	Mural Locations
Jess Graham	In front of 1 Main St. building
Max Hodgson	On St. Paul St. adjacent to City Hall Park
Jo Levasseur	On corner of Main and South Union St.
Tara Goreau	In the driveway entrance to Lyan C Hunt school

**Table 4: Storm drain mural artists**

## Water Quality Monitoring Program Summary

During the summers of 2012-2015, CCST collected biweekly water quality samples at 14 sites on 8 stream sites. These urban or suburban streams suffer from sedimentation, excessive nutrient loads, high temperatures, bacteria, and other pollutants. In 2016, samples were again collected with support from VT DEC's LaRosa program. Fourteen volunteers helped collect grab samples at 15 different stream locations, on 5, Tuesdays from 7/4 - 8/30/16. Grab samples were analyzed for turbidity, total phosphorous, and chloride, as well as E. coli at one site (Wheeler Nature Park). These parameters were also sampled at five of the sites during two rain events on 8/1 and 10/13/16.

A required, sampling training was given to CCST's 16 volunteers on 6/28/16. All volunteers returned their samples to the LaRosa laboratory at UVM after sampling, and the CCST coordinator picked up their field data sheets, ensured all samples were accounted for, and checked the samples into the lab. At the end of the sampling season, pizza and other snacks were provided to recognize and appreciate the volunteers for their efforts. This program is made possible thanks to support from the Vermont Department of Environmental Conservation LaRosa program, a partnership that provides technical and financial assistance for implementing new and/or ongoing surface water monitoring projects around the state.



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<b>Location</b>	<b>Waterbody</b>	<b>Site ID</b>	<b>Lat / Long</b>
Grove Street in Burlington	Centennial Brook	Cent 10	44.48453 / -73.18423
Champlain School Comm. Gardens	Englesby Brook	Englesby 10	44.45627 / -73.21394
Essex High School	Indian Brook	Indian 10	44.49668 / -73.11093
Lang Farm in Essex	Indian Brook	Indian 20	44.50442 / -73.09190
McMullen Road	Malletts Creek	Milton 10	44.60779 / -73.20103
Route 7 and Bay Road	Monroe Brook	Monroe 10	44.38987 / -73.21730
Spear & Webster Intersection	Monroe Brook	Monroe 20	44.38984 / -73.20103
Landry Park Winooski	Morehouse Brook	Morehouse 10	44.50037 / -73.19370
River Cove Road in Williston	Muddy Brook	Muddy 10	44.47293 / -73.13505
Marshall Avenue in South Burlington	Muddy Brook	Muddy 20	44.45340 / -73.13833
Van Sicklen Road in Williston	Muddy Brook	Muddy 30	44.42823 / -73.14622
Kindness Court in South Burlington	Potash Brook	Potash 10	44.44572 / -73.21348
Farrell Street in South Burlington	Potash Brook	Potash 20	44.44660 / -73.20415
Dorset Street in South Burlington	Potash Brook	Potash 30	44.45150 / -73.17849
Wheeler Nature Park, S. Burlington	Potash Brook Trib	Wheeler 10	44.44188 / -73.16740

**Table 5: 2016 Stream sampling site locations**

## **Adopt-a Rain Garden Program Summary**

The Stream Team's Adopt-a-Rain Garden program is an opportunity for individuals to assist in keeping Chittenden County's public rain gardens clean and attractive by performing basic maintenance activities. The "adopted" gardens are of varying age and origin. A few were installed by the Winooski Natural Resources Conservation District/Chittenden County Stream Team, some have been in existence for a long time and needed extra care, while others are new. Information about CCST adopt-a-rain garden program is available on the Stream Team [website](#). The status of each of the CCST public rain gardens is provided below:

### **Brownell Library Rain Garden**

**Location:** 6 Lincoln St. Essex Junction

**Status:** This garden has existed for many years and has several mature shrubs. Unfortunately, several of the mature shrubs are the invasive burning bush (*Euonymus alatus*.) Although the garden does not currently have an adopter, it has had an active adopter over the last several years. Additional plants and mulch were added to the garden in 2013 and 2014. It has been weeded and well-maintained in 2013, 2014 and 2015. Brownell Library staff are interested in getting rid of the burning bush. CCST will work with the Village of Essex Junction to remove the invasive plants and seek replacement shrubs.

### **Callahan Park Rain Garden**

**Location:** Locust St., Burlington

**Status:** This garden has been functioning well for some time, despite its surrounding conditions. In 2013 the garden began to experience significant slumping. Work was done to repair the slumping, which caused the loss of many plants. However, the garden appears to be building back up and doing better. This garden has an active volunteer, Brad Ketterling, who is committed to weeding and monitoring the garden.. Brad is



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interested in adding more pollinator species in the future, and will need four cubic yards of mulch in 2017. This garden will need to be thinned in 2017, and surplus plants can be donated to other gardens.

#### **Chamberlain School**

**Location:** 262 White Street, South Burlington

**Status:** This garden was installed in partnership with WNRCD and the Let it Rain Program in 2013. This is one of several rain gardens on the grounds of Chamberlain Elementary. Chris Provost (a teacher at the school) has adopted this garden and actively maintains it, often using the gardens as an educational aide with his students. Additional plants and mulch were provided to these gardens in 2014 and 2015. CCST would like to find someone willing to donate to this garden mulch for the 2017 season. As this garden is not on public land, the South Burlington DPW is not required to provide materials for this garden.

#### **Coast Guard Station**

**Location:** Depot Street, Burlington

**Status:** This garden was very overgrown for some time. It is a small garden in a large parking lot at the edge of Lake Champlain. In 2014, CCST worked with the ECHO summer kids program to engage elementary school children in rain gardens. In several work sessions, the students pulled weeds, removed trash, planted dozens of new plants and applied mulch. Although Wiley Reading was contacted in the spring about continuing on as the formal adopter of this garden, he did not respond to the request. CCST coordinator will connect with Wiley again in 2017, or attempt to find another adopter for this upcoming season.

#### **Correctional Facility**

**Location:** 7 Farrell St., South Burlington

**Status:** This garden is visible from the road and appears to be functioning properly. Originally, employees of the prison adopted this garden and would occasionally maintain the garden with inmates. There has been a lot of staff turnover in the past few years without a clear adopter. In 2013, CCST delivered upwards of 50 plants to the center to be planted by the inmates. We were told that there was a weed-pulling day in 2014. No formal adoption of this garden was made in 2016, and CCST coordinate will attempt to make contact with the Correctional Facility staff again in 2017 or find another adopter for this garden.

#### **Farrell Park**

**Location:** Swift Street, South Burlington

**Status:** This garden is unique in terms of its design. It is called an “advanced wetland stormwater filter.” It was installed in 2012. Stormwater enters the garden through an inlet, flows through the gravel wetland filter media, is cleaned and exits through the other end. The garden requires very little maintenance because it has a flushing system that prevents sediment from building up. This garden had an active adopter for its entire life, until 2015 when the adopter moved away. The garden was never in need of additional plants or maintenance. It would not be appropriate to add mulch to this garden. CCST would like to find another adopter in 2017 to bring any issues to our attention.



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**Landry Park**

**Location:** North St., Winooski

**Status:** This garden was constructed in 2006. It was originally constructed as two separate gardens along the narrow strip of grass between a fence at Landry Park and the road. Over the years, the garden has fallen into disrepair. A few years ago, nearby road construction altered the slope of the road carrying larger volumes of water into the garden. The increased flows have killed some of the vegetation and caused gullies to form, but the vegetation seems to have rebounded. It would be beneficial to the functionality of the garden to have the sediment vacuumed out and CCST will attempt to coordinate with the City of Winooski to conduct this work in 2017. In 2016, a group of UVM students in an Ecosystem Design course developed recommendations to repair the garden. There is no current adopter; and CCST coordinator will attempt to find one for the 2017 growing season.

**Williston Town Hall Annex**

**Location:** 7900 Williston Rd, Williston

**Status:** This small garden near the entrance walkway to the Annex building and the parking lot has had an active adopter since 2014, Rita Desseau.

**Williston Library**

**Location:** 21 Library Lane, Williston

**Status:** This garden has had an active adopter for many years named Andrew Wolf. The garden is functioning properly, is weeded and not in need of any extra care.

**South Burlington Fire Department**

575 Dorset St., South Burlington

**Status:** South Burlington recently installed a bioretention area/rain garden to improve stormwater management at the Fire Department. (<http://www.sburstormwater.com/stormwater-projects/city-offices-stormwater-improvement-project/>) An adopter was not identified for this garden in 2016, and attempts will be made to secure one for 2017.

**South Burlington Library**

540 Dorset St., South Burlington

**Status:** WNRCD received a grant to construct a rain garden at the entrance to South Burlington Library in 2013. The rain garden received minimal maintenance by the library staff over the years, and was formally adopted in 2016 by Amy Niggel's Cub Scout 678 pack. The garden was mulched (materials donated by South Burlington school), weeded, plants thinned, and replanted in barren spots around the garden in August.



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